

## Baldor Digital Control Brushless ac Servo Drives Series II – FlexDrive™ II & Flex+Drive™ II

*FlexDrive II, Flex+Drive II* are part of a new generation of Baldor servo controls, which share a common control platform. Based on the MintMT™ Operating System, the Series II controls share a common front-end and parameter set with the Baldor *NextMove* series of motion controllers.

*FlexDrive II* and *Flex+Drive II* servo drivers offer:

- New 32-bit front-end common to all Series II FlexDrives and MintDrives.
- Rotary and linear motor support.
- Feedback options include:
  - Resolver
  - Commutating Encoder
  - EnDat – single and multi-turn absolute
- Handwheel encoder for both encoder and resolver based motors.
- Higher performance encoder input, 12MHz (post quadrature), for high speed linear motor applications.
- Auto-tuning of current, velocity and position loops with Hall sequence detection and calculation of motor inductance and resistance.
- Preset jog speeds, selectable from user inputs. (7 standard or up to 256 with option).
- PLC task with simple AND/OR logic
- All software for the Series II is shipped on CD-ROM. This contains not only the front end, but also full documentation, including details on the ActiveX control for PC programming.

*Flex+Drive II* also offers

- Mint programmable for indexing applications and simple following (gearing) applications.
- Preset positions selectable from user inputs, with independent absolute and relative indexing positions. (7 standard or up to 256 with option).

### Factory-fit Options:

- Additional 10 digital inputs and 5 digital outputs
- DeviceNet fieldbus
- Profibus-DP fieldbus
- CANopen fieldbus

### Feature Comparison (For all new applications, Baldor recommends you choose Series II drives)

Feature	FlexDrive	Flex+Drive	FlexDrive II	Flex+Drive II
Digital Inputs	8 + Enable PNP/NPN Fixed functionality		8 + Enable PNP/NPN Software Configurable	
Digital Outputs	3 NPN + 1 Relay		3 PNP + 1 Relay Software Configurable	
Analog Inputs	1 – 12bit		1 – 14bit Software Programmable	
Serial Connector	9-pin female		9-pin male	
RS485	Option (4-wire with RTS/CTS)		Std – user configurable 4-wire	
RS232	Option		Std – user configurable	
Baud Rate	9,600		(57,600 max RS232) (19,000 max RS485)	
24V Logic Supply	Option for single phase controls		Option for single phase controls	
Resolver Feedback	Yes		Yes	
Encoder Feedback	Yes (loss of master encoder)		Yes	
Encoder Frequency	400kHz		12MHz (post quad)	
EnDat (absolute)	No		Yes	
Linear Motor control	LinDrive	Lin+Drive	Yes	
Master Encoder	Yes (resolver motors only)		Yes	
Pulse Direction	Yes	No	Yes	
Position Latch	No		2x (1µs)	
Control Law	PI Pole Placement		PI (current) + accel feedforward PID (vel) PIDVFF (pos)	
Autotune	Via front end		Via front end	
Hall Sequence Detection	No		Yes	
Inductance & Resistance Measurement	No		Yes	
Velocity/Currency loops	500µs Velocity/125µs Current		250µs Velocity/125µs Current	
Position Loop	1ms		500µsec	
Profiler Rate	1ms		1ms/2ms	
EEPROM Parameter Storage	Yes		yes	
CANOpen	Yes		Yes	
DeviceNet	No		Yes	
Profibus-DP	No		Yes	
Windows Front End	16bit Dedicated for each Control		32bit Universal front end	
Programmable I/O Functions	Hardware Limits Only		Yes	
Software Limits	Yes		Yes	
PLC Task	Yes		Yes (extended conditions)	
AND/OR Operations	No		Yes	
Preset Positions	No	Yes – up to 15	No	Yes – up to 256 with I/O expansion
Jog	Yes		Yes	
Preset Jog Speeds	1 – via PLC task		Yes – up to 256 with I/O expansion	
Homing	No	Yes	No	Yes
Electronic Gearing	Yes	No	Yes	
Fault Log	10 faults with timestamp		32 faults with timestamp Cleared faults also Latched	
Tuning Scope	Yes 2 Channels		Yes 6 Channels	
Save to CSV	Save to .gph file		Yes	
Mint Programmable	No		No	Yes
Program Size	N/A		N/A	16K
Host Interface	ASCII		BBP2	
Windows programming tools	No		Active X	

NOTE: 'FlexDrive™' and 'Flex+Drive™' products are mature, with no further development or software enhancements possible.



## Baldor Digital Control Brushless ac Servo Drives Series II FlexDrive™ II & Flex+Drive™ II

### Alternative Configurations

(Available with original order only. Non-standard configurations ex-factory only)

Feedback	FlexDrive II	Flex+Drive II
E = Encoder	Standard	Standard
R = Resolver	+\$110	+\$110
D = Endat	+\$110	+\$110
Bus Options		
N = None	standard	standard
B = CAN open + extra I/O	N/A	+\$500
C = CAN open (1 channel)	+\$253	+\$253
D = Devicenet	+\$490	+\$490
P = Profibus	+\$440	+\$440
Serial Port		
2 = RS232	standard	standard
4 = RS485		user selectable



**Flex+Drive II  
SERVODRIVER**

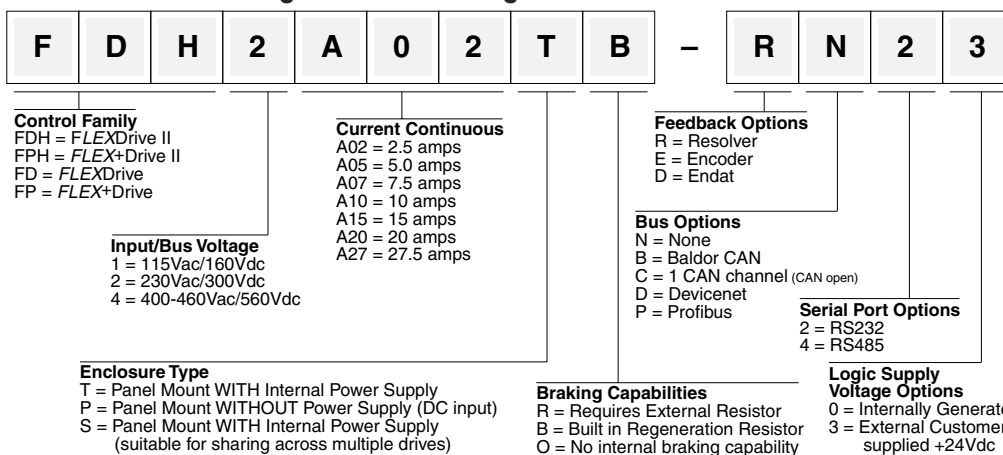
### Drive Specifications

Input Voltage Range	Nom. 230Vac/1 ph (220 – 250Vac)	Nom. 415Vac/3ph (180 – 528Vac)
Input Frequency	50/60Hz ±5%	
Logic Input Supply	+20.4 – 28.8Vdc/1.75A	
Output Bus voltage	320Vdc @230Vac/1 ph input	586Vdc @415Vac/3 ph input
Efficiency	≥ 95%	
Minimum Load Inductance	200µH	
Operating Altitude	1000m ASL (derate 1.1% per 300m above)	
Operating Temperature	0 to +40°C (derate 2.5%/°C to max. 50°C)	
Storage Temperature	-25 to +70°C	
Humidity	10% – 90% non-condensing	
Shock	1G	
Vibration	1 G (10 – 60 Hz)	

### Logic Supply Voltage

0 = Internally generated	Std on 1ph/not avail. on 3ph
3 = Customer supplied	Std on 3ph/no charge on 1ph

### 'FlexDrive' – Catalogue No and Configuration Information



## 'FlexDrive II™' Servo Drives

Catalogue Number Group E3	Continuous Output A(rms)	Peak Output A(rms)	Input Voltage Range 50/60Hz ±5% Vac/ph	Nominal Bus Voltage Vdc	Braking Resistor* B = Built-in RGxx = Resistor N°	Package Dimensions Standard/With Option Refer to Page 21	Weight kg	List Price \$
<b>FlexDrive II™ BRUSHLESS ac SERVODRIVER with INTEGRATED POWER SUPPLY</b>								
FDH2A02TB-RN23	2.5	5	220-250/1ph	300	B	A std, B w/Opt	1.25 (1.55)	<b>1,585</b>
FDH2A02TB-EN23	2.5	5	220-250/1ph	300	B	A std, B w/Opt	1.25 (1.55)	<b>1,475</b>
FDH2A05TB-RN23	5.0	10	220-250/1ph	300	B	C std, D w/Opt	2.1 (2.3)	<b>1,782</b>
FDH2A05TB-EN23	5.0	10	220-250/1ph	300	B	C std, D w/Opt	2.1 (2.3)	<b>1,672</b>
FDH2A07TR-RN23	7.5	15	220-250/1ph	300	RG39	D	2.30	<b>1,918</b>
FDH2A07TR-EN23	7.5	15	220-250/1ph	300	RG39	D	2.30	<b>1,808</b>
FDH2A15TR-RN23	15.0	30	184-253/3Ph	300	RG10	E	3.30	<b>2,684</b>
FDH2A15TR-EN23	15.0	30	184-253/3Ph	300	RG10	E	3.30	<b>2,576</b>
FDH4A02TB-RN23	2.5	5	180-528/3ph	560	B	G	4.90	<b>2,476</b>
FDH4A02TB-EN23	2.5	5	180-528/3ph	560	B	G	4.90	<b>2,368</b>
FDH4A05TB-RN23	5.0	10	180-528/3ph	560	B	G	4.90	<b>2,548</b>
FDH4A05TB-EN23	5.0	10	180-528/3ph	560	B	G	4.90	<b>2,440</b>
FDH4A07TR-RN23	7.5	15	180-528/3ph	560	RG68	G	4.90	<b>2,624</b>
FDH4A07TR-EN23	7.5	15	180-528/3ph	560	RG68	G	4.90	<b>2,516</b>
FDH4A15TR-RN23	15.0	30	180-528/3ph	560	RG27A	H	9.05	<b>3,158</b>
FDH4A15TR-EN23	15.0	30	180-528/3ph	560	RG27A	H	9.05	<b>3,050</b>
FDH4A20TR-RN23	20.0	40	180-528/3ph	560	RG27A	H	9.05	<b>3,635</b>
FDH4A20TR-EN23	20.0	40	180-528/3ph	560	RG27A	H	9.05	<b>3,527</b>
FDH4A27TR-RN23	27.5	55	180-528/3ph	560	RG11	H	9.05	<b>4,113</b>
FDH4A27TR-EN23	27.5	55	180-528/3ph	560	RG11	H	9.05	<b>4,005</b>

NOTES: **EXTERNAL REGENERATION RESISTORS** – May be required depending upon load characteristics. Refer to page 21. \* 1ph not recommended for more than 5amps bus current. The above configurations are standard Australian stock items. Alternative configurations for 115Vac/50-60Hz input are available ex-factory. Refer page 15.

## 'FlexDrive™' Servo Drives (Series I)

**NOTE: Not for new applications. Please choose from FlexDrive™ II 'FDH' or 'FPH' models.**

These products are mature, with no further development or software enhancements possible.

Catalogue Number Group E3	Continuous Output A(rms)	Peak Output A(rms)	Input Voltage Range 50/60Hz ±5% Vac/ph	Nominal Bus Voltage Vdc	Braking Resistor* B = Built-in RGxx = Resistor N°	Dimensions Refer to Page 21 Package Size	Weight kg	List Price \$
<b>FlexDrive™ BRUSHLESS ac SERVODRIVER with INTEGRATED POWER SUPPLY</b>								
FD2A02TB-RN20	2.5	5	184 – 253/1ph	300	B	A	1.24	<b>1,638</b>
FD2A05TB-RN20	5.0	10	184 – 253/1ph	300	B	B	2.13	<b>1,841</b>
FD2A07TR-RN20	7.5	15	184 – 253/1ph	300	RG39	C	2.18	<b>1,980</b>

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## 'Flex+Drive II™' Servo Drives

Catalogue Number Group E3	Continuous Output A(rms)	Peak Output A(rms)	Input Voltage Range 50/60Hz ±5% Vac/ph	Nominal Bus Voltage Vdc	Braking Resistor* B = Built-in RGxx = Resistor N°	Package Dimensions Standard/With Option Refer to Page 21	Weight Std/With Option kg	List Price \$
<b>Flex+Drive II™ BRUSHLESS ac SERVODRIVER with INTEGRATED POWER SUPPLY</b>								
FPH2A02TB-RN23	2.5	5	220-250/1ph	300	B	A std, B w/Opt	1.25 (1.55)	<b>1,829</b>
FPH2A02TB-RB23	2.5	5	220-250/1ph	300	B	A std, B w/Opt	1.25 (1.55)	<b>2,329</b>
FPH2A02TB-EN23	2.5	5	220-250/1ph	300	B	A std, B w/Opt	1.25 (1.55)	<b>1,721</b>
FPH2A02TB-EB23	2.5	5	220-250/1ph	300	B	A std, B w/Opt	1.25 (1.55)	<b>2,221</b>
FPH2A05TB-RN23	5.0	10	220-250/1ph	300	B	C std, D w/Opt	2.1 (2.3)	<b>2,023</b>
FPH2A05TB-RB23	5.0	10	220-250/1ph	300	B	C std, D w/Opt	2.1 (2.3)	<b>2,523</b>
FPH2A05TB-EN23	5.0	10	220-250/1ph	300	B	C std, D w/Opt	2.1 (2.3)	<b>1,915</b>
FPH2A05TB-EB23	5.0	10	220-250/1ph	300	B	C std, D w/Opt	2.1 (2.3)	<b>2,415</b>
FPH2A07TR-RN23	7.5	15	220-250/1ph	300	RG39	D	2.30	<b>2,157</b>
FPH2A07TR-RB23	7.5	15	220-250/1ph	300	RG39	D	2.30	<b>2,657</b>
FPH2A07TR-EN23	7.5	15	220-250/1ph	300	RG39	D	2.30	<b>2,049</b>
FPH2A07TR-EB23	7.5	15	220-250/1ph	300	RG39	D	2.30	<b>2,549</b>
FPH2A15TR-RN23	15.0	30	184-253/3Ph	300	RG10	E	3.30	<b>2,955</b>
FPH2A15TR-EN23	15.0	30	184-253/3Ph	300	RG10	E	3.30	<b>2,847</b>
FPH2A15TR-EB23	15.0	30	184-253/3Ph	300	RG10	E	3.30	<b>3,350</b>
FPH4A02TB-RN23	2.5	5	180-528/3ph	560	B	G	4.90	<b>2,751</b>
FPH4A02TB-EN23	2.5	5	180-528/3ph	560	B	G	4.90	<b>2,643</b>
FPH4A05TB-RN23	5.0	10	180-528/3ph	560	B	G	4.90	<b>2,821</b>
FPH4A05TB-EN23	5.0	10	180-528/3ph	560	B	G	4.90	<b>2,713</b>
FPH4A07TR-RN23	7.5	15	180-528/3ph	560	RG68	G	4.90	<b>2,883</b>
FPH4A07TR-EN23	7.5	15	180-528/3ph	560	RG68	G	4.90	<b>2,775</b>
FPH4A15TR-RN23	15.0	30	180-528/3ph	560	RG27A	H	9.05	<b>3,414</b>
FPH4A15TR-EN23	15.0	30	180-528/3ph	560	RG27A	H	9.05	<b>3,306</b>
FPH4A20TR-RN23	20.0	40	180-528/3ph	560	RG27A	H	9.05	<b>3,891</b>
FPH4A20TR-EN23	20.0	40	180-528/3ph	560	RG27A	H	9.05	<b>3,783</b>
FPH4A27TR-RN23	27.5	55	180-528/3ph	560	RG11	H	9.05	<b>4,370</b>
FPH4A27TR-EN23	27.5	55	180-528/3ph	560	RG11	H	9.05	<b>4,262</b>

NOTES: **EXTERNAL REGENERATION RESISTORS** – May be required depending upon load characteristics. Refer to page 21. \* 1ph not recommended for more than 5amps bus current. The above configurations are standard Australian stock items. Alternative configurations for 115Vac/50-60Hz input are available ex-factory. Refer page 15.

## 'Flex+Drive™' Servo Drives (Series I)

**NOTE: Not for new applications. Please choose from FlexDrive™ II 'FDH' or 'FPH' models.**

These products are mature, with no further development or software enhancements possible.

Catalogue Number Group E3	Continuous Output A(rms)	Peak Output A(rms)	Input Voltage Range 50/60Hz ±5% Vac/ph	Nominal Bus Voltage Vdc	Braking Resistor* B = Built-in RGxx = Resistor N°	Dimensions Refer to Page 21 Package Size	Weight kg	List Price \$
<b>FlexDrive™ BRUSHLESS ac SERVODRIVER with INTEGRATED POWER SUPPLY</b>								
FP2A05TB-RN20	5.0	10	184 – 253/1ph	300	B	B	2.13	<b>2,183</b>
FP2A07TR-RN20	7.5	15	184 – 253/1ph	300	RG39	C	2.18	<b>2,328</b>
FP2A02TB-RN20	2.5	5.0	184 – 253/1ph	300	B	A	1.24	<b>1,973</b>

NOTES: **EXTERNAL REGENERATION RESISTORS** – May be required depending upon load characteristics. Refer to page 21. \* 1ph not recommended for more than 5amps bus current. The above configurations are standard Australian stock items. Alternative configurations for 115Vac/50-60Hz input are available ex-factory. Refer page 15.